

ARCS PROCEDURE:	AERI CALIBRATION CHECK PROCEDURE (CALC)	PRO(AERI)-006.002
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AERI Calibration Check Procedure (CALC)

I. Purpose:

The purpose of this procedure is to describe the steps performed by the RESET team to check the calibration of the AERI at the ARCS sites.

II. Cautions and Hazards:

- Take care when standing on or near circulation fan to remove rain sensor and place portable blackbody on AERI optical exit tube.
- Make sure fan is turned OFF and will not activate during this procedure.

III. Requirements:

- Everest Interscience Portable Blackbody Calibration Source.
- Small Allen wrench (3/32") set for removal of rain sensor.

IV. Procedure:

A. Steps:

1. Notify data system personnel of calibration.
2. While the AERI is operating normally, turn OFF fan in AERI small enclosure (located on right hand side).
3. Remove rain sensor (attached with velcro) from top of AERI optical exit tube and place portable blackbody in the field of view so that the temperature output is visible.
4. Turn the portable blackbody source ON.
5. Wait until the blackbody temperature stabilizes and the AERI values stabilize (15-20 minutes).
(Note: If Sun is coming directly into AERI, CLOSE roof hatch.).
6. Select (by clicking the mouse ON) the surface temperature graph.
7. Left click, hold down, and Zoom on temperatures (Zoom with long rectangles rather than squares to include more than 1 data point).
8. Right click inside graph (not on top bar) and select "Options," coordinates under mouse.
9. Double left click on maximum # (either axis) to enter higher # to get graph on scale (turn OFF real-time update under options).

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10. Enter surface layer temperature in attached calibration form FM(AERI)-001.000.
11. Right click for menu and deselect "options, coordinates" under "mouse" and select "visual last scale."
12. Now select EP calibration.
13. Zoom up blue line for cold b temperature.
14. Select coordinates under mouse.
15. Scale the cold blackbody temperature as in steps 6 through 9.
16. Enter the cold BB temperature and the portable blackbody temperature (add 273.15 to convert degree C to Kelvin) on attached form FM (AERI)-001.000.
17. If AERI cold BB temperature differs from Portable Blackbody temperature or surface layer temperature by one (1) K, notify mentor, science coordinator, or TWPPPO for further instructions.
18. Exit as in step 11.

IMPORTANT: Reopen hatch, remount moisture detector, and return graphs to original state.

To view files:

19. Left-click on file drawer "Mods."
20. Select BLT view.
21. Left-click on data icon.
22. Select file list.
23. Left-click on "c:\ftp\Aeyymmdd."
24. Left-click on day folder to get yymm C files (combined), F files (forward), and B files (back).

To collect AERI configuration:

1. Left-click on OS2 window.
2. Change directory to "config" (cd config).
3. Change folder to aeyymmdd (example: ae000707).
4. Copy yymmdd.par file to floppy disk (a:).
5. Name this file "aeri_yymmdd.cfg".
6. Send a copy of c:\config files to mentor and TWPPPO at <ftp.twppo.lanl.gov> using "reset" (all lowercase) as login name and the double-nickel password.

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V. References:

1. "AERI Operation Manual," Univ. of Wisconsin, 1997
2. "Low Temperature Calibration Source Instrument Manual" by Everest Interscience, 1995.
3. Heiman Opotoelectronics IRT Instrument Manual.

VI. Attachments:

1. AERI Calibration Check Form, FM(AERI)-001.000

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III. Final Values

Sensor/Element:	Portable Black Body Reference	AERI Black Body Reading	AERI BB Diff. from Ref.	Surface Temp. Reading	Surf. Temp. Diff. from Ref.
AERI Temperatures					

IV. Statistics(if applicable)

No. of Samples:	Std. Dev.	CF Range %	Uncertainty %

V. Calibration Change(if applicable)

Sensor or Parameter	Sensor Serial No.	Internal Resistance (Ohms)	Original Sensitivity (Volts/Unit)	Offset	Quadratic
	Old	Old	Old	Old	Old
	New	New	New	New	New

Document(s) Referenced:

Document(s) Updated:
